

ABSTRACT

A stitching apparatus is disclosed which has at least one active thread feeder and is operable to adjust stitching operation based on the condition of a thread being stitched. The active thread feeder is operable to feed thread from a spool to a needle assembly, where the thread is stitched into fabric. The stitching apparatus includes at least one thread sensor. The thread sensor outputs information related to thread tension, which is received at a control which includes a first controller, and the first controller is used for controlling the thread. The control can calculate a thread feed length, and activate the active thread feeder to feed the appropriate amount of thread to the needle assembly. The control can use information from the thread sensor to adjust thread tension by adjusting the active thread feeder. The control can also detect a break in the thread, or a break in an underthread which is located in a lower arm assembly and is used to lock stitches. The thread sensor is located more adjacent to the thread than to the underthread.

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